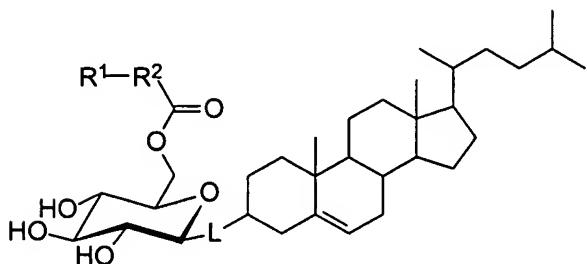


**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): A compound of formula A below, or a pharmaceutically acceptable salt or complex thereof, wherein the compound formula A comprises



wherein R<sup>1</sup> is selected from azido, amino, substituted amino, hydrazino, hydrazide, semicarbazide, or carbohydrazide;

R<sup>2</sup> is selected from a saturated or unsaturated carbon chain containing 1 to 25 carbon atoms, or a saturated ~~to~~ or unsaturated substituted carbon chain containing 1 to 25 carbon atoms; and

L is selected from O, N, S, P, or an alkylene radical.

Claim 2 (original): The compound of claim 1, wherein R<sup>1</sup> is selected from azido, amino or hydrazide; R<sup>2</sup> is a saturated or unsaturated carbon chain containing 5 to 20 carbon atoms; and L is O.

Claim 3 (original): The compound of claim 2, wherein the compound is chemically synthesized.

Claim 4 (original): The compound of claim 1, wherein L is O.

Claim 5 (original): A conjugate comprising the compound of claim 1 and at least one protein carrier, wherein the compound of claim 1 is covalently bound to the protein carrier.

Claim 6 (original): A conjugate comprising the compound of claim 2 and at least one protein carrier, wherein the compound of claim 2 is covalently bound to the protein carrier.

Claim 7 (original): The conjugate of claim 5, wherein the compound of claim 1 is covalently bound to the protein carrier via the R<sup>1</sup> group.

Claim 8 (original): The conjugate of claim 6, wherein the compound of claim 2 is covalently bound to the protein carrier via the R<sup>1</sup> group.

Claim 9 (currently amended): The conjugate of claim 5, wherein the protein carrier comprises bovine serum albumin, ovalbumin, keyhole limpet hemocyanin, purified protein derivative of tuberculin, tetanus toxoid, cholera toxoid, diphtheria toxoid, *Pseudomonas aeruginosa* toxoid, *Clostridium* toxoid, Shiga toxin, hepatitis B antigen, or a sequence of amino acids of a *Borrelia burgdorferi* burgdorferi polypeptide.

Claim 10 (currently amended): The conjugate of claim 6, wherein the protein carrier comprises bovine serum albumin, ovalbumin, keyhole limpet hemocyanin, purified protein derivative of tuberculin, tetanus toxoid, cholera toxoid, diphtheria toxoid, *Pseudomonas aeruginosa* toxoid, *Clostridium* toxoid, Shiga toxin, hepatitis B antigen, or a sequence of amino acids of a *Borrelia burgdorferi* burgdorferi polypeptide.

Claim 11 (original): A method for making the compound of claim 1, wherein R<sup>1</sup> is azido and L is O, the method comprising:

reacting a galactosyl halide with cholesterol to provide a galactosyl-cholesterol; and  
reacting an azidoacyl acid with the galactosyl-cholesterol to provide the compound of claim 1.

Claim 12 (original): A pharmaceutical composition comprising a therapeutically effective amount of the compound of claim 1 and a pharmaceutically acceptable carrier.

Claim 13 (original): A pharmaceutical composition comprising a therapeutically effective amount of the compound of claim 2 and a pharmaceutically acceptable carrier.

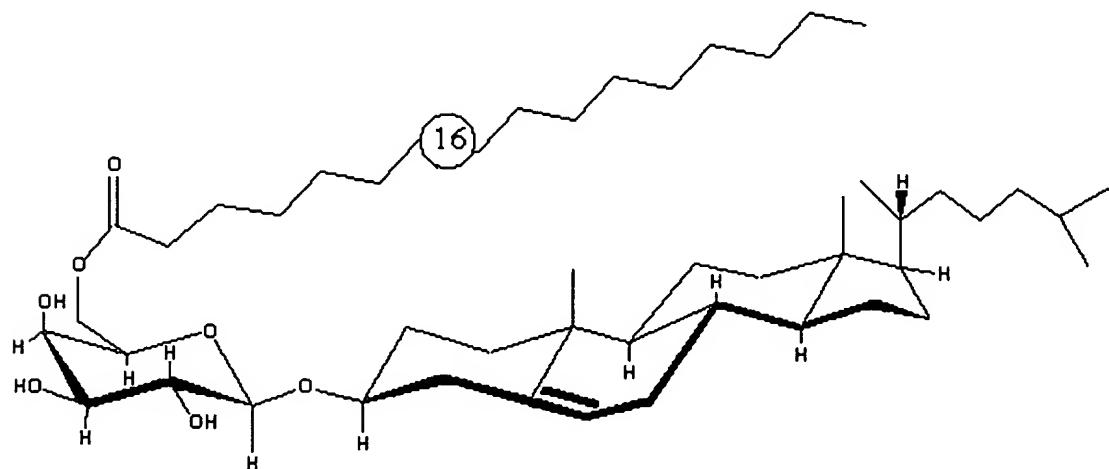
Claim 14 (original): A pharmaceutical composition comprising a therapeutically effective amount of the conjugate of claim 5.

Claim 15 (original): A pharmaceutical composition comprising a therapeutically effective amount of the conjugate of claim 6 and a pharmaceutically acceptable carrier.

Claim 16 (original): A method of inducing an immune response to *B. burgdorferi* in a subject, comprising administering a therapeutically effective amount of the compound of claim 1 to the subject, thereby inducing the immune response.

Claim 17 (original): A method of preventing or treating Lyme disease in a subject, comprising administering to a subject a therapeutically effective amount of the compound of claim 1, thereby preventing or treating Lyme disease in the subject.

Claim 18 (original): A purified compound having a formula B below, or a pharmaceutically acceptable salt or complex thereof, wherein the compound formula B comprises



wherein "16" represents the number of carbon atoms in a palmitoyl group shown in the formula.

Claim 19 (original): The compound of claim 18, wherein the compound is isolated from *B. burgdorferi*.

Claim 20 (original): A pharmaceutical composition comprising a therapeutically effective amount of the purified compound of claim 18 and a pharmaceutically acceptable carrier.

Claim 21 (original): A pharmaceutical composition comprising a therapeutically effective amount of the purified compound of claim 18 conjugated to at least one protein carrier.

Claim 22 (original): A method of inducing an immune response to *B. burgdorferi* in a subject, comprising administering a therapeutically effective amount of the purified compound of claim 18 to the subject, thereby inducing the immune response.

Claim 23 (original): A method of preventing or treating Lyme disease in a subject, comprising administering to a subject a therapeutically effective amount of the purified compound of claim 18, thereby preventing or treating Lyme disease in the subject.

Claims 24-31 (canceled).